

**IN THE CLAIMS**

Please substitute claims 1-19 with the following:

1. (Previously Presented) A fractal structure, comprising:

a first region comprising a first plurality of lattice sites, said first region having a first fractal structure grown from the start point of time of growth to a first point of time, said first fractal structure grown by:

identifying the lattice sites adjacent to one of the first plurality of lattice sites;

for each lattice site adjacent to the one lattice site;

determining the probability that the lattice site is selected as part of the first fractal structure;

selecting another lattice site based on the probability that the lattice site is selected as part of the first fractal structure; and

adding the other lattice site to the first fractal structure; and

until the first point of time:

identifying the lattice sites adjacent to the other lattice site; and

for each lattice site adjacent to the other lattice site;

determining the probability that the lattice site is selected as part of the first fractal structure;

selecting the other lattice site based on the probability that the lattice site is selected as part of the first fractal structure; and

adding the other lattice site to the first fractal structure; and

a second region comprising a second plurality of lattice sites, said second region having a second fractal dimension grown from said first point of time to a second point of time, said second fractal structure grown by:

identifying the lattice sites adjacent to one of the second plurality of lattice sites;

for each lattice site adjacent to the one lattice site;

determining the probability that the lattice site is selected as part of the second fractal structure;

selecting another lattice site based on the probability that the lattice site is selected as part of the second fractal structure; and

adding the other lattice site to the second fractal structure; and

until the second point of time:

identifying the lattice sites adjacent to the other lattice site; and

for each lattice site adjacent to the other lattice site;

determining the probability that the lattice site is selected as part of the second fractal structure;

selecting the other lattice site based on the probability that the lattice site is selected as part of the second fractal structure; and

adding the other lattice site to the second fractal structure.

2. (Previously Presented) The fractal structure according to claim 1 wherein said fractal structure is controlled in nature of phase transition occurring therein by adjustment of the timing for changing said growth conditions.

3. (Previously Presented) The fractal structure according to claim 1 wherein said fractal structure is controlled in critical temperature for ferromagnetic phase transition occurring therein by adjustment of the timing for changing said growth conditions.

4. (Previously Presented) The fractal structure according to claim 1 wherein said fractal structure is controlled in nature of a chaos appearing therein by adjustment of the timing for changing said growth conditions.

5. (Previously Presented) The fractal structure according to claim 1 wherein said fractal structure is controlled in nature of a quantum chaos in an electron state appearing therein by adjustment of the timing for changing said growth conditions.

6. (Previously Presented) The fractal structure according to claim 5 wherein said quantum chaos in the electron state is controlled by addition of a magnetic impurity.

7. (Previously Presented) The fractal structure according to claim 1 wherein said regions are nebula-like as a whole.

8. (Previously Presented) The fractal structure according to claim 1 wherein  $D_{f1} > 2.7$  and  $D_{f2} < 2.3$  are satisfied where  $D_{f1}$  is said first fractal dimension and  $D_{f2}$  is said second fractal dimension.

9. (Previously Presented) The fractal structure according to claim 1 wherein  $2.7 < D_{f1} \leq 3$  and  $1 \leq D_{f2} < 2.3$  are satisfied where  $D_{f1}$  is said first fractal dimension and  $D_{f2}$  is said second fractal dimension.

10. (Previously Presented) The fractal structure according to claim 1 wherein  $2.9 \leq D_{f1} \leq 3$  and  $1 \leq D_{f2} < 2.3$  are satisfied where  $D_{f1}$  is said first fractal dimension and  $D_{f2}$  is said second fractal dimension.

11. (Previously Presented) A method, comprising:

growing a fractal structure in a region comprising a first plurality of lattice sites in a first

fractal dimension, wherein the step of growing the first fractal structure comprises the steps of:

identifying the lattice sites adjacent to one of the first plurality of lattice sites;

for each lattice site adjacent to the one lattice site;

determining the probability that the lattice site is selected as part of the first fractal structure;

selecting another lattice site based on the probability that the lattice site is selected as part of the first fractal structure; and

adding the other lattice site to the first fractal structure; and

until a first point of time:

identifying the lattice sites adjacent to the other lattice site; and

for each lattice site adjacent to the other lattice site;

determining the probability that the lattice site is selected as part of the first fractal structure;

selecting the other lattice site based on the probability that the lattice site is selected as part of the first fractal structure; and

adding the other lattice site to the first fractal structure; and

growing said fractal structure using in a region comprising a second plurality of lattice sites in a second fractal dimension, wherein the step of growing the second fractal structure comprises the steps of:

identifying the lattice sites adjacent to one of the second plurality of lattice sites;

for each lattice site adjacent to the one lattice site;

determining the probability that the lattice site is selected as part of the second fractal structure;

selecting another lattice site based on the probability that the lattice site is selected as part of the second fractal structure; and

adding the other lattice site to the second fractal structure; and  
until a second point of time:

identifying the lattice sites adjacent to the other lattice site; and

for each lattice site adjacent to the other lattice site;

determining the probability that the lattice site is selected as part of the second fractal structure;

selecting the other lattice site based on the probability that the lattice site is selected as part of the second fractal structure; and

adding the other lattice site to the second fractal structure.

12. (Previously Presented) The method according to claim 11, further comprising adjusting the first point of time to control phase transition occurring in said fractal structure.

13. (Previously Presented) The method according to claim 11, further comprising adjusting the first point of time to control critical temperature for ferromagnetic phase transition occurring in said fractal structure.

14. (Previously Presented) The method according to claim 11, further comprising adjusting the first point of time to control the nature of a chaos appearing in said fractal structure.

15. (Previously Presented) The method according to claim 11, further comprising adjusting the first point of time to control a quantum chaos in an electron state appearing in said fractal structure.

16. (Previously Presented) The method according to claim 15, further comprising adding a magnetic impurity to control said quantum chaos in the electron state.

17. (Previously Presented) The method according to claim 11 wherein  $D_{f1} > 2.7$  and  $D_{f2} < 2.3$  are satisfied where  $D_{f1}$  is said first fractal dimension and  $D_{f2}$  is said second fractal dimension.

18. (Previously Presented) The method according to claim 11 wherein  $2.7 < D_{f1} \leq 3$  and  $1 \leq D_{f2} < 2.3$  are satisfied where  $D_{f1}$  is said first fractal dimension and  $D_{f2}$  is said second fractal dimension.

19. (Previously Presented) The method according to claim 11 wherein  $2.9 \leq D_{f1} \leq 3$  and  $1 \leq D_{f2} < 2.3$  are satisfied where  $D_{f1}$  is said first fractal dimension and  $D_{f2}$  is said second fractal dimension.